## SEQUENCE LISTING

```
<110> Avalon Pharmaceuticals, Inc.
<120> Identification of Therapeutic Agents Using Genetic Fingerprinting
<130> 689290-192
<140>
<141>
<150>
       60/480,013
<151>
       2003-06-20
<150>
       60/517,369
      2003-11-05
<151>
<160> 12
<170> PatentIn version 3.0
<210> 1
<211> 538
<212> DNA
<213> Homo sapiens
<400> 1
                                                                      60
tcttttctca aagttcctgc cttgctagac tgttagctct ttgaggacag ggactatgtc
ttatcaatca ctattatttt cctgttacct agcatgggac aagtacacaa cacatatttg
                                                                     120
ttcaatgaat gaatgaatgt cttctaaaag actcctctga ttgggaggac aatatctata
                                                                     180
attgggatgt gaatcatttc ttcagtggaa taagagcaca acggcacaac cttcaaggac
                                                                     240
atattatcta ctatgaacat tttactgtga gactctttat tttgccttct acttgcgctg
                                                                     300
aaatgaaacc aaaacaggcc gttgggttca caagtcaata tatgttggat gaggattctg
                                                                     360
ttgccttatt ggggactgtg agacttatct ggtatgagaa gccagtaata aacctttgac
                                                                     420
ctgttttaac caatgaagat taggaatatg ttaatatgat gtaaattgct atttaagtgt
                                                                     480
aaagcagttc caagttttag tattcggggg attggtttat gataattttt cccctttg
                                                                     538
<210> 2
<211> 3794
<212> DNA
<213> Homo sapiens
<400> 2
ccaagttcta cctcatgttt ggaggatctt gctagctatg gccctcgtac tcggctccct
                                                                      60
gttgctgctg gggctgtgcg ggaactcctt ttcaggaggg cagccttcat ccacagatgc
                                                                     120
tcctaaggct tggaattatg aattgcctgc aacaaattat gagacccaag actcccataa
                                                                     180
agctggaccc attggcattc tctttgaact agtgcatatc tttctctatg tggtacagcc
                                                                     240
gcgtgatttc ccagaagata ctttgagaaa attcttacag aaggcatatg aatccaaaat
                                                                     300
tgattatgac aagccagaaa ctgtaatctt aggtctaaag attgtctact atgaagcagg
                                                                     360
gattattcta tgctgtgtcc tggggctgct gtttattatt ctgatgcctc tggtggggta
                                                                     420
tttcttttgt atgtgtcgtt gctgtaacaa atgtggtgga gaaatgcacc agcgacagaa
                                                                     480
ggaaaatggg cccttcctga ggaaatgctt tgcaatctcc ctgttggtga tttgtataat
                                                                     540
aataagcatt ggcatcttct atggttttgt ggcaaatcac caggtaagaa cccggatcaa
                                                                     600
aaggagtcgg aaactggcag atagcaattt caaggacttg cgaactctct tgaatgaaac
                                                                     660
tocagagcaa atcaaatata tattggccca gtacaacact accaaggaca aggcgttcac
                                                                     720
agatctgaac agtatcaatt cagtgctagg aggcggaatt cttgaccgac tgagacccaa
                                                                     780
catcatccct gttcttgatg agattaagtc catggcaaca gcgatcaagg agaccaaaga
                                                                     840
ggcgttggag aacatgaaca gcaccttgaa gagcttgcac caacaaagta cacaqcttag
                                                                     900
cagcagtctg accagcgtga aaactagcct gcggtcatct ctcaatgacc ctctqtqctt
                                                                     960
```

```
1020
ggtgcatcca tcaagtgaaa cctgcaacag catcagattg tctctaagcc agctgaatag
                                                                     1080
caaccetgaa etgaggeage ttecaccegt ggatgeagaa ettgacaaeg ttaataaegt
tcttaggaca gatttggatg gcctggtcca acagggctat caatccctta atgatatacc
                                                                     1140
                                                                     1200
tqacaqaqta caacqccaaa ccacqactqt cgtagcaggt atcaaaaggg tcttgaattc
cattggttca gatatcgaca atgtaactca gcgtcttcct attcaggata tactctcagc
                                                                     1260
                                                                     1320
attctctgtt tatgttaata acactgaaag ttacatccac agaaatttac ctacattgga
agagtatgat tcatactggt ggctgggtgg cctggtcatc tgctctctgc tgaccctcat
                                                                     1380
cgtgattttt tactacctgg gcttactgtg tggcgtgtgc ggctatgaca ggcatgccac
                                                                     1440
cccgaccacc cgaggctgtg tctccaacac cggaggcgtc ttcctcatgg ttggagttgg
                                                                     1500
attaagtttc ctcttttgct ggatattgat gatcattgtg gttcttacct ttgtctttgg
                                                                     1560
tgcaaatgtg gaaaaactga tctgtgaacc ttacacgagc aaggaattat tccgggtttt
                                                                     1620
ggatacaccc tacttactaa atgaagactg ggaatactat ctctctggga agctatttaa
                                                                     1680
taaatcaaaa atgaagctca cttttgaaca agtttacagt gactgcaaaa aaaatagagg
                                                                     1740
cacttacggc actcttcacc tgcagaacag cttcaatatc agtgaacatc tcaacattaa
                                                                     1800
tgagcatact ggaagcataa gcagtgaatt ggaaagtctg aaggtaaatc ttaatatctt
                                                                     1860
tctgttgggt gcagcaggaa gaaaaaacct tcaggatttt gctgcttgtg gaatagacag
                                                                     1920
aatgaattat gacagctact tggctcagac tggtaaatcc cccgcaggag tgaatctttt
                                                                     1980
atcatttgca tatgatctag aagcaaaagc aaacagtttg cccccaggaa atttgaggaa
                                                                     2040
ctccctgaaa agagatgcac aaactattaa aacaattcac cagcaacgag tccttcctat
                                                                     2100
agaacaatca ctgagcactc tataccaaag cgtcaagata cttcaacgca cagggaatgg
                                                                     2160
attgttggag agagtaacta ggattctagc ttctctggat tttgctcaga acttcatcac
                                                                     2220
                                                                     2280
aaacaatact tcctctgtta ttattgagga aactaagaag tatgggagaa caataatagg
atattttgaa cattatctgc agtggatcga gttctctatc agtgagaaag tggcatcgtg
                                                                     2340
caaacctqtg gccaccgctc tagatactgc tgttgatgtc tttctgtgta gctacattat
                                                                     2400
                                                                     2460
cgaccccttg aatttgtttt ggtttggcat aggaaaagct actgtatttt tacttccggc
                                                                     2520
tctaattttt gcggtaaaac tggctaagta ctatcgtcga atggattcgg aggacgtgta
cgatgatgtt gaaactatac ccatgaaaaa tatggaaaat ggtaataatg gttatcataa
                                                                     2580
                                                                     2640
agatcatgta tatggtattc acaatcctgt tatgacaagc ccatcacaac attgatagct
qatqttqaaa ctqcttqaqc atcaggatac tcaaaqtgga aaggatcaca gatttttggt
                                                                     2700
                                                                     2760
aqtttctqqq tctacaaqqa ctttccaaat ccaggagcaa cgccagtggc aacgtagtga
ctcaggcggg caccaaggca acggcaccat tggtctctgg gtagtgcttt aagaatgaac
                                                                     2820
acaatcacgt tatagtccat ggtccatcac tattcaagga tgactccctc ccttcctgtc
                                                                     2880
tatttttgtt ttttactttt ttacactgag tttctattta gacactacaa catatggggt
                                                                     2940
gtttgttccc attggatgca tttctatcaa aactctatca aatgtgatgg ctagattcta
                                                                     3000
acatattgcc atgtgtggag tgtgctgaac acacaccagt ttacaggaaa gatgcatttt
                                                                     3060
gtgtacagta aacggtgtat ataccttttg ttaccacaga gttttttaaa caaatgagta
                                                                     3120
ttataggact ttcttctaaa tgagctaaat aagtcaccat tgacttcttg gtgctgttga
                                                                     3180
aaataatcca ttttcactaa aagtgtqtqa aacctacagc atattcttca cgcagagatt
                                                                     3240
ttcatctatt atactttatc aaaqattgqc catqttccac ttggaaatgg catgcaaaag
                                                                     3300
ccatcataga gaaacctgcg taactccatc tgacaaattc aaaagagaga gagagatctt
                                                                     3360
gagagagaaa tgctgttcgt tcaaaagtgg agttgtttta acagatgcca attacggtgt
                                                                     3420
acagtttaac agagttttct gttgcattag gataaacatt aattggagtg cagctaacat
                                                                     3480
gagtatcatc agactagtat caagtgttct aaaatgaaat atgagaagat cctgtcacaa
                                                                     3540
ttcttagatc tggtgtccag catggatgaa acctttgagt ttggtcccta aatttgcatg
                                                                     3600
aaagcacaag gtaaatattc atttgcttca ggagtttcat gttggatctg tcattatcaa
                                                                     3660
aagtqatcaq caatqaaqaa ctggtcggac aaaatttaac gttgatgtaa tggaattcca
                                                                     3720
gatgtaggca ttcccccag gtctttcat gtgcagattg cagttctgat tcatttgaat
                                                                     3780
aaaaaggaac ttgg
                                                                     3794
<210>
<211>
       1138
<212>
       DNA
<213>
       Homo sapiens
<400> 3
cccttccctg cccgacaccc agaccgacct tgaccgccca cctqqcaqqa qcaggacagg
                                                                       60
acggccggac gcggccatgg ccgagctccc ggggcccttt ctctgcgggg ccctgctagg
                                                                      120
cttcctgtgc ctgagtgggc tggccgtgga ggtgaaggta cccacagagc cgctgagcac
                                                                      180
gcccctgggg aagacagccg agctgacctg cacctacagc acgtcggtgg gagacagctt
                                                                      240
```

300

cgccctggag tggagctttq tgcagcctgg gaaacccatc tctgagtccc atccaatcct

PCT/US2004/019286 WO 2004/113502

```
360
gtacttcacc aatggccatc tgtatccaac tggttctaag tcaaaggggg tcagcctgct
                                                                    420
tcagaaccc cccacagtqq qqqtgqccac actgaaactg actgacgtcc acccctcaga
                                                                    480
tactqqaacc tacctctqcc aaqtcaacaa cccaccagat ttctacacca atgggttggg
                                                                    540
gctaatcaac cttactgtgc tggttccccc cagtaatccc ttatgcagtc agagtggaca
                                                                    600
aacctctgtg ggaggctcta ctgcactgag atgcagctct tccgaggggg ctcctaagcc
agtgtacaac tgggtgcgtc ttggaacttt tcctacacct tctcctggca gcatggttca
                                                                    660
agatgaggtg tetggecage teatteteae caacetetee etgaceteet egggeaceta
                                                                    720
                                                                    780
ccqctqtqtq qccaccaacc aqatqqqcaq tqcatcctqt gagctgaccc tctctgtgac
                                                                    840
cqaaccetce caaqqeeqaq tqqeeqqaqe tetqattqqq gtqcteetqq qeqtqetqtt
                                                                    900
gctgtcagtt gctgcgttct gcctggtcag gttccagaaa gagaggggga agaagcccaa
                                                                    960
ggagacatat gggggtagtg accttcggga ggatgccatc gctcctggga tctctgagca
                                                                   1020
cacttqtatq aggqctgatt ctagcaaggg gttcctggaa agaccctcgt ctgccagcac
cqtqacqacc accaaqtcca agctccctat ggtcgtgtga cttctcccga tccctgaggg
                                                                   1080
                                                                   1138
<210>
<211>
      2821
<212>
      DNA
<213>
      Homo sapiens
<400> 4
                                                                     60
qaaaaaaqaa aatgtcagaq gaatttgaag ccaatactat ggattctctg gtagacatgc
                                                                    120
catttqctac tqtaqatatt caqqatqact qtgqaatcac tqatqaacct caaataaatt
                                                                    180
tqaaqaqaaq tcaaqaaaat qaatqqqtca aqaqtqatca aqtaaaqaaq aggaaaaaaa
                                                                    240
agagaaaaga ttatcaaccc aactatttcc tgtccattcc aatcaccaac aaagagatta
                                                                    300
taaaaqqaat taaqatcctq caqaatqcaa taatacaaca agatqagcga ctggccaaag
caatggtcag tgatggttcc tttcatatta ccctgctggt gatgcaatta ttaaatgaag
                                                                    360
                                                                    420
atgaagtaaa cattggtatt gatgctcttt tggaattgaa accattcata gaagaactcc
                                                                    480
tccagggaaa acatttgact ttgccctttc aagggattgg tacttttgga aatcaggttg
                                                                    540
gatttgtgaa gctggcagaa ggagatcatg taaactcact tttggagata gcagagactg
                                                                    600
caaataggac atttcaagaa aaaggcatcc tggtaggaga gagcagaagt tttaaacctc
                                                                    660
atttgacctt catgaagttg tcaaaatcac cgtggctccg taagaatgga gtgaaaaaaa
                                                                    720
tagatcctga tttatatgaa aagtttatca gtcacagatt tggagaagaa atattatatc
                                                                    780
gcatagatct ttgctccatg ctgaagaaaa aacaaagtaa tggttattat cactgtgaat
                                                                    840
cttccattqt gattggtgaa aagaacggag gggagcccga tgacgctgaa ctagtaaggc
                                                                    900
tcaqtaaqaq qctqgtqqaq aacqcqgtqc tcaaqqctqt ccaqcaqtat ctggaggaaa
                                                                    960
cacagaataa aaacaagccg ggggagggga gctctgtgaa aaccgaagca gctgatcaga
atggcaatga caatgagaac aacaggaaat gagcccggaa cgcaggcccc catgtctctg
                                                                   1020
                                                                   1080
tgcaaagcct ccctgcttcc ctctgctgag tctagggact gacttgcagc gtgctgttta
```

agttaagttt ctctggtgca atctgtgaag attgcctaat acttttcatg atcgatgtgt

tcgcattgct gaaacacaac agaagaaaaa tggagtgctg ggactggcag aggaaattaa ttgatgaaag aagaatggcc caagtttcat tcgccctcag ccacgcacaa gggaaaggga

actttgggtt atgcctcctg gacgcaaatt aaaggccgag aaagaggcct tgccatcaat

ggaatactgc catttatatt gcttagcagg gcatttgact actttatctg aggccagaac

tctcacacac agctatcaag tgctaagttt aaaataatca ctgttggaat tgtcatctgt

acaattagtc cataatgttt catgtttgtc ctaagtgtgc tgttgctatg cagtgtgatc

tttatttata gtaaattatg tttcatgtaa atgatatatt tttggtgaaa tgcaaccttt

tctataaaat gtgggcaaca ttttaaagtt tttttaaaat cctattttga taagtcagta

tgccatattt aatgaaatgt tattatataa tttttttttc ttaggcaaga aacctattgg

aattcgagac ttaattaatq aagctttqca tcgaqaaacq atqqgtctga aqtccaaaqt

gaaacagata aaggaacttt tattaaagcc tqagactcag gccagaatta qqaqqqagct

ttttgaagga agacttatta acaacagtaa ttcagcaaat gacgttgatt tcagcacaac

tttgacataa gctctacatt gcgattgtga caacatagct tatgaaatct tttcagctta

ttaagtagct ctttggtaaa caccaaagaa gtttctgata gtgtctgcac aacagcaaac

caacatttgg tgaggaatta gcaatttctt gccaaagaaa attgattctg cccaattatt

ttttgagcta cacttgtgtt ttagaatatc tgtttctgta atattgagag ttattttata

gaaatgattt cttaattagc tgttgtgaga tatttctcgg gtccttgcag aaaaaaacat

acagactgtg aacaaatcat tcacaaacag aataaaacag agccaacaac agtattttaa

gggtcacttg cctcctgttg acacaattgt tgctaaatca aaagaagcgt tgtccaggtg tgtctacatc tagtgttact tttaatgaga atttgaatgt ttattgaaca atagtacttg

1140

1200

1320

1380

1440

1500

1560

1620

1680

1740

1800

1860

1920

1980

2040

2100

2160

2220 2280

2340

1260 .

```
2400
aatgaacatt tataaatgta attattgcga tcactggtta agaatgtttt atatatcctt
                                                                   2460
ataatatttt tcactgatca aaatgttgtt ctgctttttc atttcttaag gaatacatgt
                                                                   2520
ttgggatttt tatttttac gtgtccgaag ataagctcca ggtcttatcg tatcccttgc
                                                                   2580
catctgaact tgtttgcact gcttctgttt gaaagagcat cttgaaaaac ttccccggta
                                                                   2640
tgatgattgt tggtaacaac tttttctata gtcattgatg gagtagatca tgatggaggg
qaaatcactg gagatcaaat atgtaaaatc atttcaaata taaaatccag tttactcatg
                                                                   2700
qattttagct atttttcac tgggtaaatt atactacatt tatttacaaa tgagtttatg
                                                                   2760
                                                                   2820
2821
<210>
<211>
      1401
<212>
      DNA
<213> Homo sapiens
<400> 5
                                                                     60
ccgaqtctca ccctcccaqq cagctcctac actcaactgc ttctctagga aaggtctcac
                                                                    120
ctccagcctg gagcagtcgg gattacagaa agccccatcc ttggcttagg gagcgccatg
                                                                    180
acgactgaaa ttggttggtg gaagctgact ttcctccgga aaaagaaatc cactcccaaa
                                                                    240
gtgctgtatg agatecetga caectatgee caaacagagg gagatgeaga acceeegagg
                                                                    300
cctqacqctq qaqqccccaa caqcqacttt aacacccgcc tggagaagat tgtggacaag
aqcacaaaqq qcaaqcacqt caaqqtctcc aactcaggac gcttcaagga gaagaagaaa
                                                                    360
                                                                    420
qtqaqaqcca cqctqqcaqa qaaccctaac ctctttgatg atcacgagga aggacggtca
                                                                    480
tcaaaqtqaa qqqctqaqqa qqqtqctaqc acctcttgqc tccctqccat cagccagatc
                                                                    540
tgagacagga ccttgccacg ctggcctctt tggccatagc tgaagctgtg gggccagttg
                                                                    600
atacctqctq qcaqqaaatq qctqtttttt aqqtttqtat ttatqtqccq ccacttttgt
                                                                    660
aaggcctggg agatcccagg gtcctccacc ctccccctga ccacatacaa aggcactcta
                                                                    720
qttcaagagt gaaaaatctc acccaggagg aacagccctc cttgaagcaa tggcagggcc
                                                                    780
agcagggagg tgggcatggc agggaatgga gagagtgagc cagacagact tcacctcctt
actggacaca gggtcaaggg cgagtttcaa ttgctgctcc ctttactttc tctacctgtg
                                                                    840
                                                                    900
actactccct ggaccaatcc tgaggagggc acattttcca gaagccacgt gataggggct
qqtttctqtq qaqccaqaqq caqaqacact qaacttqaqc tcacctccta acaccqgcaq
                                                                    960
                                                                   1020
taaacttect ggaactttge ceteaggtge ggaggggaca gaggaceetg geactetgtt
agggtgctgt agaagactag attgatggta gtttggcctg ttagttcctg ttttggccat
                                                                   1080
                                                                   1140
gacttttgca gatggcaagt cacacacct caaagggaag ctacacgggc caaatcgggg
                                                                   1200
gagtgggtgg ggaattttct cctctcctt tcctactata atagtattta agacatatca
qctccaqaqa tqaqtcctqq aqccttqaat tttqtttaac aaaataattg taggtttctc
                                                                   1260
tctgtaataa caacgctgga aaggccgaga acctctttta tgctcatgtc ttgcatttat
                                                                   1320
                                                                   1380
tgagatgact gtttctcatg cctttatgtt ccttcatgta agtaaagtgg acctttgtgc
                                                                   1401
tcaaaaaaaa aaaaaaaaa a
<210> 6
<211> 1841
<212>
      DNA
<213>
      Homo sapiens
<400> 6
                                                                     60
agctgggacc ggagggtgag cccggcagag gcagagacac acgcggagag gaggagaggc
                                                                    120
tgagggaggg aggtggagaa ggacqggaga ggcagagaga ggagacacgc agagacactc
                                                                    180
aggagggag agacaccgag acgcagagac actcaggagg ggagagacac cgagacgcag
                                                                    240
agacacccag gccggggagc gcgagggagc gaggcacaga cctggctcag cgagcgcggg
                                                                    300
gggcgagccc cgagtcccga gagcctgggg gcgcgcccag cccgggcgcc gaccctcctc
ccgctcccgc gccctcccct cggcgggcac ggtattttta tccgtgcgcg aacagccctc
                                                                    360
ctectectet egeogeacag ecegeogeet gegeggggga geceageaca gacegeegee
                                                                    420
gggaccccga gtcgcgcacc ccagccccac cgcccacccc gcgcgccatg gaccccaagg
                                                                    480
accgcaagaa gatccagttc tcggtgcccg cgcccctag ccagctcgac ccccgccagg
                                                                    540
tggagatgat ccggcgcagg agaccaacgc ctgccatgct gttccggctc tcagagcact
                                                                    600
cctcaccaga ggaggaagcc tcccccacc agagagcctc aggagagggg caccatctca
                                                                    660
agtequagaq acceaacce tgtgcctaca caccacette getgaaaget gtgcageqea
                                                                    720
```

```
780
ttgctgagtc tcacctgcag tctatcagca atttgaatga gaaccaggcc tcagaggagg
                                                                     840
aggatgagct gggggagctt cgggagctgg gttatccaag agaggaagat gaggaggaag
                                                                     900
aggaggatga tgaagaagag gaagaagaag aggacagcca ggctgaagtc ctgaaggtca
                                                                     960
tcaggcagtc tgctgggcaa aagacaacct gtggccaggg tctggaaggg ccctgggagC
                                                                    1020
gcccaccccc tctggatgag tccgagagag atggaggctc tgaggaccaa gtggaagacc
cagcactaag tgagcctggg gaggaacctc agcgcccttc cccctctgag cctggcacat
                                                                    1080
                                                                    1140
aggcacccag cctgcatctc ccaggaggaa gtggagggga catcgctgtt ccccagaaac
                                                                    1200
ccactctatc ctcaccctgt tttgtgctct tcccctcgcc tgctagggct gcggcttctg
acttctagaa gactaaggct ggtctgtgtt tgcttgtttg cccacctttg gctgataccc
                                                                    1260
agagaacctg ggcacttgct gcctgatgcc cacccctgcc agtcattcct ccattcaccc
                                                                    1320
                                                                    1380
agcqqqaqqt qqqatqtqaq acagcccaca ttggaaaatc cagaaaaccg ggaacaggga
                                                                    1440
tttgcccttc acaattctac tccccagatc ctctcccctg gacacaggag acccacaggg
caggacccta agatetgggg aaaggaggte etgagaacct tgaggtacce ttagateett
                                                                    1500
ttctacccac tttcctatgg aggattccaa gtcaccactt ctctcaccgg cttctaccag
                                                                    1560
ggtccaggac taaggcgttt ttctccatag cctcaacatt ttgggaatct tcccttaatc
                                                                    1620
accettgete etectgggtg cetggaagat ggactggeag agacetettt gttgegtttt
                                                                    1680
gtgctttgat gccaggaatg ccgcctagtt tatgtccccg gtggggcaca cagcgggggg
                                                                    1740
cgccaggttt tccttgtccc ccagctgctc tgcccctttc cccttcttcc ctgactccag
                                                                    1800
                                                                    1841
gcctgaaccc ctcccgtgct gtaataaatc tttgtaaata a
<210>
<211> 1040
<212> DNA
<213> Homo sapiens
<400> 7
                                                                       60
accgcggcgc gccgcctcc gccgttatat gaggccccgc tccggcccca cgcggaaccc
                                                                      120
geggeteega geettegeeg gegteeegae eegaggeegg accegaggee agteeegeeg
                                                                      180
ctgcgcagcc gaagccagtg cggggcctga gagggacgcg cgccccgggg cccccgccgc
gggcaccatg ggcgctgccc actccgcgtc tgaggaggtg cgggagctcg agggcaagac
                                                                      240
cggcttctca tcggatcaga tcgagcagct ccatcggaga tttaagcagc tgagtggaga
                                                                      300
tcagcctacc attcgcaagg agaacttcaa caatgtcccg gacctggagc tcaaccccat
                                                                      360
ccgatccaaa attgttcgtg ccttcttcga caacaggaac ctgcgcaagg gacccagtgg
                                                                      420
cctqqctqat qaqatcaatt tcqaqqactt cctqaccatc atgtcctact tccggcccat
                                                                      480
cgacaccacc atggacgagg aacaggtgga gctgtcccgg aaggagaagc tgagatttct
                                                                     540
qttccacatq tacqactcqq acaqcqacqq ccgcatcact ctggaaqaat atcgaaatgt
                                                                      600
                                                                      660
qqtcqaqqaq ctqctqtcqq qaaaccctca catcqagaag gagtccgctc gctccatcgc
                                                                      720
cgacggggcc atgatggagg cggccagcgt gtgcatgggg cagatggagc ctgatcaggt
                                                                      780
gtacgagggg atcaccttcg aggacttcct gaagatctgg caggggatcg acattgagac
caagatgcac gtccgcttcc ttaacatgga aaccatggcc ctctgccact gacccaccgc
                                                                      840
cacctccgcg gagaaactgc actttgcaat ggggccgcct ccccgcgtag ctggagcagc
                                                                      900
ccaggcccgg cggacagcct cttcctgcag cgccggtaca tagccaaggc tcgtctgcgc
                                                                      960
accttqtqtc ttqtaqqqta tqqtatqtqq qacttcqctq tttttatctc caataaaaaa
                                                                     1020
                                                                     1040
aaaaaaagg tttgttaatt
<210> 8
<211> 1119
<212> DNA
<213> Homo sapiens
<400> 8
accaaatcaa ccataggtcc aagaacaatt gtctctggac ggcagctatg cgactcaccg
                                                                       60
tgctgtgtgc tgtgtgcctg ctgcctggca gcctggccct gccgctgcct caggaggcgg
                                                                      120
gaggcatgag tgagctacag tgggaacagg ctcaggacta tctcaagaga ttttatctct
                                                                      180
atgactcaga aacaaaaat gccaacagtt tagaagccaa actcaaggag atgcaaaaat
                                                                      240
                                                                      300
tctttggcct acctataact ggaatgttaa actcccgcgt catagaaata atgcagaagc
ccagatgtgg agtgccagat gttgcagaat actcactatt tccaaatagc ccaaaatgga
                                                                      360
cttccaaagt ggtcacctac aggatcgtat catatactcg agacttaccg catattacag
                                                                      420
                                                                      480
tggatcgatt agtgtcaaag gctttaaaca tgtggggcaa agagatcccc ctgcatttca
```

```
540
qqaaaqttqt atqqqqaact qctqacatca tqattqqctt tqcqcqagga gctcatgggg
                                                                      600
actectacce atttgatggg ccaggaaaca cgctggctca tgcctttgcg cctgggacag
                                                                      660
gtctcggagg agatgctcac ttcgatgagg atgaacgctg gacggatggt agcagtctag
                                                                      720
ggattaactt cctgtatgct gcaactcatg aacttggcca ttctttgggt atgggacatt
                                                                      780
cctctgatcc taatgcagtg atgtatccaa cctatggaaa tggagatccc caaaatttta
                                                                      840
aactttccca ggatgatatt aaaggcattc agaaactata tggaaagaga agtaattcaa
gaaagaaata gaaacttcag gcagaacatc cattcattca ttcattggat tgtatatcat
                                                                      900
                                                                      960
tqttqcacaa tcagaattqa taagcactgt tcctccactc catttagcaa ttatgtcacc
                                                                     1020
cttttttatt gcagttggtt tttgaatgtc tttcactcct tttaaggata aactccttta
tggtgtgact gtgtcttatt catctatact tgcagtgggt agatgtcaat aaatgttaca
                                                                     1080
                                                                     1119
tacacaaata aataaaatgt ttattccatg gtaaattta
<210>
      9
<211>
       1444
<212>
       DNA
<213>
      Homo sapiens
<400> 9
                                                                       60
acqqtcaccc qttqccaqct ctaqccttta aattcccggc tcggggacct ccacgcaccg
                                                                      120
cggctagcgc cgacaaccag ctagcgtgca aggcgccgcg gctcagcgcg taccggcggg
                                                                      180
cttcqaaacc qcaqtcctcc qqcqaccccq aactccgctc cggagcctca gccccctgga
                                                                      240
aagtgatccc ggcatccgag agccaagatg ccggcccact tgctgcagga cgatatctct
                                                                      300
agetectata ceaecaceae caccattaca gegeetecet ceagggteet geagaatgga
                                                                      360
ggagataagt tggagacgat gcccctctac ttggaagacg acattcgccc tgatataaaa
                                                                      420
gatgatatat atgaccccac ctacaaqqat aaqqaaqqcc caaqccccaa ggttgaatat
                                                                      480
qtctqqaqaa acatcatcct tatqtctctg ctacacttgg gagccctgta tgggatcact
                                                                      540
ttgattccta cctgcaagtt ctacacctgg ctttgggggg tattctacta ttttgtcagt
                                                                      600
gccctgggca taacagcagg agctcatcgt ctgtggagcc accgctctta caaagctcgg
                                                                      660
ctgcccctac ggctctttct gatcattgcc aacacaatgg cattccagaa tgatgtctat
                                                                      720
gaatgggctc gtgaccaccg tgcccaccac aagttttcag aaacacatgc tgatcctcat
                                                                      780
aattcccgac gtggcttttt cttctctcac gtgggttggc tgcttgtgcg caaacaccca
                                                                      840
gctgtcaaag agaaggggag tacgctagac ttgtctgacc tagaagctga gaaactggtg
atgttccaqa ggaggtacta caaacctggc ttgctgatga tgtgcttcat cctgcccacg
                                                                      900
                                                                      960
cttgtgccct ggtatttctg gggtgaaact tttcaaaaca gtgtgttcgt tgccactttc
ttgcqatatg ctgtggtgct taatgccacc tggctggtga acagtgctgc ccacctcttc
                                                                     1020
                                                                     1080
ggatatcgtc cttatgacaa gaacattagc ccccgggaga atatcctggt ttcacttgga
                                                                     1140
gctqtqqqtq aqqqcttcca caactaccac cactcctttc cctatqacta ctctqccaqt
                                                                     1200
gagtaccgct ggcacatcaa cttcaccaca ttcttcattg attgcatggc cgccctcggt
ctggcctatg accggaagaa agtctccaag gccgccatct tggccaggat taaaagaacc
                                                                     1260
qqaqatgqaa actacaaqag tqqctqaqtt tqqqqtccct cagqttcctt tttcaaaaac
                                                                     1320
cagccaggca gaggttttaa tgtctgttta ttaactactg aataatgcta ccaggatgct
                                                                     1380
aaagatgatg atgttaaccc attccagtac agtattcttt taaaattcaa aagtattgaa
                                                                     1440
                                                                     1444
agcc
<210>
       10
<211>
       2101
<212>
       DNA
<213>
       Homo sapiens
<400> 10
ggagagegeg ctetgeetge egeetgeetg cetgeeactg agggtteeca geaceatgag
                                                                       60
ggcctggatc ttctttctcc tttgcctggc cgggagggcc ttggcagccc ctcagcaaga
                                                                      120
agccctgcct gatgagacag aggtggtgga agaaactgtg gcagaggtga ctgaggtatc
                                                                      180
tgtgggagct aatcctgtcc aggtggaagt aggagaattt gatgatggtg cagaggaaac
                                                                      240
cgaagaggag gtggtggcgg aaaatccctg ccagaaccac cactgcaaac acggcaaggt
                                                                      300
gtgcgagctg gatgagaaca acacccccat gtgcgtgtgc caggacccca ccagctgccc
                                                                      360
agcccccatt ggcgagtttg agaaggtgtg cagcaatgac aacaagacct tcgactcttc
                                                                      420
ctgccacttc tttgccacaa agtgcaccct ggagggcacc aagaagggcc acaagctcca
                                                                      480
cetggactac ategggeett geaaatacat ecceettge etggactetg agetgacega
                                                                      540
```

```
600
attcccctg cgcatgcggg actggctcaa gaacgtcctg gtcaccctqt atgagaggga
tgaggacaac aaccttctga ctgagaagca gaagctgcgg gtgaagaaga tccatgagaa
                                                                   660
                                                                   720
tgagaagcgc ctggaggcag gagaccaccc cgtggagctg ctggcccggg acttcgagaa
                                                                   780
gaactataac atgtacatct teeetgtaca etggeagtte ggeeagetgg accageacee
                                                                   840
cattgacggg tacctctccc acaccgagct ggctccactg cgtgctcccc tcatccccat
                                                                   900
ggagcattgc accacccgct ttttcgagac ctgtgacctg gacaatgaca agtacatcgc
cctggatgag tgggccggct gcttcggcat caagcagaag gatatcgaca aggatcttgt
                                                                   960
gatctaaatc cactccttcc acagtaccgg attctctctt taaccctccc cttcgtgttt
                                                                  1020
cccccaatgt ttaaaatgtt tggatggttt gttgttctgc ctggagacaa ggtgctaaca
                                                                  1080
tagatttaag tgaatacatt aacggtgcta aaaatgaaaa ttctaaccca agacatgaca
                                                                  1140
ttcttagctg taacttaact attaaggcct tttccacacg cattaatagt cccatttttc
                                                                  1200
tettgecatt tgtagetttg eccattgtet tattggeaca tgggtggaca eggatetget
                                                                  1260
gggctctgcc ttaaacacac attgcagctt caacttttct ctttagtgtt ctgtttgaaa
                                                                  1320
1380
gcttccccag gtggcctgga ggtgggcaaa gggaagtaac agacacacga tgttgtcaag
                                                                  1440
gatggttttg ggactagagg ctcagtggtg ggagagatcc ctgcagaacc caccaaccag
                                                                  1500
aacgtggttt gcctgaggct gtaactgaga gaaagattct ggggctgtgt tatgaaaata
                                                                  1560
tagacattct cacataagcc cagttcatca ccatttcctc ctttaccttt cagtgcagtt
                                                                  1620
tcttttcaca ttaggctgtt ggttcaaact tttgggagca cggactgtca gttctctggg
                                                                  1680
aagtggtcag cgcatcctgc agggcttctc ctcctctgtc ttttggagaa ccagggctct
                                                                  1740
tctcaggggc tctagggact gccaggctgt ttcagccagg aaggccaaaa tcaagagtga
                                                                  1800
gatgtagaaa gttgtaaaat agaaaaagtg gagttggtga atcggttgtt ctttcctcac
                                                                  1860
atttggatga ttgtcataag gtttttagca tgttcctcct tttcttcacc ctcccctttt
                                                                  1920
ttcttctatt aatcaagaga aacttcaaag ttaatgggat ggtcggatct cacaggctga
                                                                  1980
qaactcgttc acctccaagc atttcatgaa aaagctgctt cttattaatc atacaaactc
                                                                  2040
tcaccatqat qtqaaqaqtt tcacaaatcc ttcaaaataa aaaqtaatqa cttaqaaact
                                                                  2100
                                                                  2101
```

<210> 11 <211> 2101 <212> DNA

<213> Homo sapiens

## <400> 11

qccqaaqtca qttccttqtq qaqccqqaqc tqqqcqcqqa ttcqccqaqq caccqaqqca 60 ctcagaggag gcgccatgtc agaaccggct ggggatgtcc gtcagaaccc atgcggcagc 120 aaggcetgee geegeetett eggeeeagtg gacagegage agetgageeg egactgtgat 180 gcgctaatgg cgggctgcat ccaggaggcc cgtgagcgat ggaacttcga ctttgtcacc 240 gagacaccac tggagggtga cttcgcctgg gagcgtgtgc ggggccttgg cctgcccaag 300 ctctaccttc ccacggggcc ccggcgaggc cgggatgagt tqggaggagg cagqcgqcct 360 ggcacctcac ctgctctgct gcaggggaca gcagaggaag accatgtgga cctgtcactg 420 tettgtacce ttgtgceteg etcaggggag caggetgaag ggteeccagg tggaeetgga 480 gacteteagg gtegaaaacg geggeagaee ageatgaeag atttetaeea etecaaacge 540 cggctgatct tetecaagag gaageeetaa teegeecaca ggaageetge agteetggaa 600 gcgcgagggc ctcaaaggcc cgctctacat cttctgcctt agtctcagtt tgtgtgtctt 660 aattattatt tgtgttttaa tttaaacacc tcctcatgta cataccctgg ccgccccctg 720 cccccagcc tctggcatta gaattattta aacaaaaact aggcggttga atgagaggtt 780 cctaagagtg ctgggcattt ttattttatg aaatactatt taaagcctcc tcatcccgtg 840 ttctcctttt cctctccc ggaggttggg tgggccggct tcatgccagc tacttcctcc 900 tececactty tecgetgggt ggtaceetet ggaggggtgt ggeteettee eategetgte 960 acaggoggtt atgaaattca coccetttee tqqacactca qacctqaatt ettttteatt 1020 1080 tgagaagtaa acagatggca ctttgaaggg gcctcaccga gtgggggcat catcaaaaac tttggagtcc cctcacctcc tctaaggttg ggcagggtga ccctqaagtg agcacagcct 1140 agggetgage tggggaeetg gtacceteet ggetettgat acceceetet gtettgtgaa 1200 ggcaggggga aggtggggtc ctggagcaga ccaccccgcc tgccctcatg gcccctctga 1260 cctgcactgg ggagcccgtc tcagtgttga gccttttccc tctttggctc ccctgtacct 1320 tttgaggagc cccagctacc cttttctcc agctgggctc tgcaattccc ctctgctgct 1380 gtccctcccc cttgtccttt cccttcagta ccctctcagc tccaggtggc tctgaggtgc 1440 ctgtcccacc cccaccccca gctcaatgga ctggaagggg aagggacaca caagaagaag 1500 ggcaccctag ttctacctca ggcagctcaa gcagcgaccg ccccctcctc tagctgtggg 1560

1620 ggtgagggtc ccatgtggtg gcacaggccc ccttgagtgg ggttatctct gtgttagggg 1680 tatatgatgg gggagtagat ctttctagga gggagacact ggcccctcaa atcgtccagc 1740 gaccttcctc atccaccca teceteccca gttcattgca ctttgattag cageggaaca 1800 aggaqtcaga cattttaaga tggtggcagt agaggctatg gacagggcat gccacgtggg 1860 ctcatatggg gctgggagta gttgtctttc ctggcactaa cgttgagccc ctqqaggcac 1920 tgaagtgctt agtgtacttg gagtattggg gtctgacccc aaacaccttc cagctcctgt aacatactgg cctggactgt tttctctcgg ctccccatgt gtcctggttc ccgtttctcc 1980 2040 acctagactg taaacctctc gagggcaggg accacaccct gtactgttct gtgtctttca 2100 cageteetee cacaatgetg aatatacage aggtgeteaa taaatgatte ttagtgaett 2101 <210> 12 <211> 3410 <212> DNA <213> Homo sapiens <400> 12 60 qaaqqqqacq qgqcqqcccc agtcggaggt cgcagggagc tccgcccccg actcggtata 120 agaqctqqqc ccqqcccacq qcqqcqqcgg cggcggcgga gagagctggc tcagggcgtc 180 cqctaqqctc qqacqacctg ctqagcctcc caaaccgctt ccataaggct ttgcctttcc 240 aacttcaget acagtgttag ctaagtttgg aaagaaggaa aaaagaaaat ccctgggccc 300 cttttctttt qttctttqcc aaaqtcqtcq tiqtagtctt tttqcccaag gctgttgtgt ttttaqaqqt qctatctcca qttccttqca ctcctgttaa caagcacctc agcgagagca 360 420 qcaqcaqcqa taqcaqccqc agaaqaqcca gcgqqqtcqc ctaqtqtcat gaccagggcg 480 qqaqatcaca accqccagaq aqqatqctqt qqatccttqq ccqactacct qacctctqca 540 aaatteette tetaeettgg teattetete tetaettggg gagateggat gtggeaettt gcggtgtctg tgtttctggt agagctctat ggaaacagcc tccttttgac agcagtctac 600 660 qqqctqqtqg tqqcaqqqtc tqttctqqtc ctqqqaqcca tcatcqqtqa ctqqqtqqac aagaatgcta gacttaaagt ggcccagacc tcgctggtgg tacagaatgt ttcagtcatc 720 780 ctgtgtggaa tcatcctgat gatggttttc ttacataaac atgagcttct gaccatgtac catggatggg ttctcacttc ctgctatatc ctgatcatca ctattgcaaa tattgcaaat 840 900 ttqqccaqta ctqctactqc aatcacaatc caaaqggatt ggattqttqt tqttqcagga qaaqacagaa qcaaactagc aaatatgaat gccacaatac gaaggattga ccagttaacc 960 aacatettag cocccatgge tgttggccag attatgacat ttggctcccc agtcateggc 1020 tqtqqcttta tttcqqqatq gaacttggta tccatgtgcg tggagtacgt tctgctctgg 1080 1140 aaggtttacc agaaaacccc agctctagct gtgaaagctg gtcttaaaga agaggaaact 1200 qaattqaaac agctgaattt acacaaagat actgagccaa aacccctgga gggaactcat ctaatqqqtq tqaaaqactc taacatccat qaqcttqaac atqagcaaqa gcctacttgt 1260 gcctcccaga tggctgagcc cttccgtacc ttccgagatg gatgggtctc ctactacaac 1320 cagcctgtgt ttctggctgg catgggtctt gctttccttt atatgactgt cctgggcttt 1380 gactgcatca ccacagggta cgcctacact cagggactga gtggttccat cctcagtatt 1440 ttgatgggag catcagctat aactggaata atgggaactg tagcttttac ttggctacgt 1500 cgaaaatgtg gtttggttcg gacaggtctg atctcaggat tggcacagct ttcctgtttg 1560 atcttgtgtg tgatctctgt attcatgcct ggaagccccc tggacttgtc cgtttctcct 1620 tttgaagata tccgatcaag gttcattcaa ggagagtcaa ttacacctac caagatacct 1680 gaaattacaa ctgaaatata catgtctaat gggtctaatt ctgctaatat tgtcccggag 1740 acaagteetg aatetgtgee cataatetet gteagtetge tgtttgeagg egteattget 1800 gctagaatcg gtctttggtc ctttgattta actgtgacac agttgctgca agaaaatgta 1860 attgaatctg aaagaggcat tataaatggt gtacagaact ccatgaacta tcttcttgat 1920 cttctqcatt tcatcatqqt catcctqqct ccaaatcctq aagcttttqq cttqctcqta 1980 ttgatttcag tctcctttgt ggcaatgggc cacattatgt atttccgatt tgcccaaaat 2040 actotgggaa acaagotott tgottgoggt cotgatgoaa aagaagttag gaaggaaaat 2100 caagcaaata catctgttgt ttgagacagt ttaactgttg ctatcctgtt actagattat 2160 atagagcaca tgtgcttatt ttgtactgca gaattccaat aaatggctgg gtgttttgct 2220 ctgtttttac cacagctgtg ccttgagaac taaaagctgt ttaggaaacc taagtcagca 2280 gaaattaact gattaatttc ccttatgttg aggcatggaa aaaaaattgg aaaagaaaaa 2340 ctcagtttaa atacggagac tataatgata acactgaatt cccctatttc tcatgagtag 2400 atacaatctt acgtaaaaga gtggttagtc acgtgaattc agttatcatt tgacagattc 2460 ttatctgtac tagaattcag atatgtcagt tttctgcaaa actcactctt gttcaagact 2520 agctaattta tttttttgca tcttagttat ttttaaaaac aaattcttca agtatgaaga 2580

ctaaattttq	ataactaata	ttatccttat	tgatcctatt	gatcttaagg	tatttacatg	2640
tatotogaaa	aacaaaacac	ttaactagaa	ttctctaata	aggtttatgg	tttagcttaa	2700
agaggaggtt	totatttta	ttatcagatg	gggcaacata	ttgtatgaag	catatgtagc	2760
acttcacage	atoottatca	totaagctgc	aggtagaagc	aaagctgtaa	agtagattta	2820
tcacacaata	actocataca	gacttcaaat	atotcaatao	tttggtcata	gaacctagaa	2880
ccacacacac	acegearaa	gcaagaatcc	caatttaact	catgitatca	tcattagtga	2940
totatatat	acacagaagg	gatataaacc	ttcagcctgg	caagttacat	gtagaaagcc	3000
congregation	agaacacgag	tttacaaatc	acttgattta	acacactcag	gtagaatatt	3060
cacacttgtg	aagguttugt	cccacaaacc	atttotacat	tgttctacag	caagaatatt	3120
tttattttta	etgetetata	cccagaagee	acciccacac	agazazazag	tttgtatata	3180
cataaaagta	tccctttcaa	atgeetttga	gaagaataga	agaaaaaaag	cetgeacaca	3240
ttttaaaaaa	ttgttttaaa	agtcagtttg	caacatgtct	gtaccaagat	ggtacttgc	02.0
cttaaccgtt	tatatgcact	ttcatggaga	ctgcaatacg	ttgctatgag	cactttctt	3300
atccttggag	tttaatcctt	tgcttcatct	ttctacagta	tgacataatg	atttgctatg	3360
ttgtaaaatc	tttgtaaaaa	atttctatat	aaaaatattt	tgaaaatctt		3410